Spring 2013

Through the Bottom of a Drinking Glass: How Beer and Brewing Changed Human History

Matthew Bougher
Rollins College, plancaster@rollins.edu

Follow this and additional works at: http://scholarship.rollins.edu/mls

Part of the History Commons

Recommended Citation
http://scholarship.rollins.edu/mls/59

This Open Access is brought to you for free and open access by Rollins Scholarship Online. It has been accepted for inclusion in Master of Liberal Studies Theses by an authorized administrator of Rollins Scholarship Online. For more information, please contact rwalton@rollins.edu.
Through the Bottom of a Drinking Glass:
How Beer and Brewing Changed Human History

A Project Submitted in Partial Fulfillment
Of the Requirements for the Degree of
Master of Liberal Studies

by

Matthew Bougher

December, 2012

Mentor: Dr. Nancy Decker
Mentor: Dr. Patricia Lancaster

Rollins College
Hamilton Holt School
Master or Liberal Studies Program
Winter Park, Florida
Introduction

Every corner of the earth is either currently influenced by or has been influenced by the beer and brewing industry. The significance of this product throughout human history is extensive and one would think the study of it would reflect this. However, until recently the study of beer and brewing was mostly historical and archeological in nature. The social, personal lives and economic impact of those who either consume or produce beer were largely over looked. This look into how beer and brewing changed cultures and the life of everyone from the king to the peasant is of great importance in understanding the evolution of its role as a driver in the growth of human society. It is the primary contention of this paper that the relegation of beer to a common man’s drink has been purposely exaggerated by certain groups and the impact of the social bias of some on this industry can be seen best through the resulting temperance and prohibition movements in America. This was the result of the clear misunderstanding of how essential beer and brewing are to the human populace if not to its current survival as a clear marker of how human societies came to be what they are today. However, to understand this one would need to both possess a time machine and travel to each period. Since this is clearly not a viable option currently this paper will attempt through the collaboration of historical evidence combined with first person experience to paint a picture of the role that brewing and consuming beer played in the life of these people.

To present a clear understanding of the impact that beer and brewing had on human society each time period is presented in chronological order. Each period will present a discussion of the brewing techniques and technology of the time, the actual beer of the time and the social, political and economic impacts that this industry had on the era
being discussed. The importance of brewing is presented through the collaboration of Scholastic research, popular culture items and Subject Matter Expert interviews.

These snapshots of the brewing industry throughout recorded human history show that brewing is a central link culturally in the history of human society, from the first Sumerian cultures throughout the history of Egypt crossing the Mediterranean to Rome. This link expanded through Europe, the Belgium monks and Bavarian governments, across “The Pond” to America, through prohibition, into the recent Craft movement. To manage the scope of this paper the material examined was restricted to the expansion of knowledge of brewing techniques and the influence beer had in the Near East and the Western world. This by no means diminishes the role that beer and brewing may have had in South Africa, South America, Asia or Australia.

While it was commonly known that if beer is brewed properly it can provide nutrition in addition to its mood altering abilities, in spite of this potential nutritional benefits it was viewed by many as the drink of the commoner and historical records often refer to beer as a barbarian’s drink. In addition as tastes changed so did the beer, this may be the cause of the lack of historical recipes as many have been altered from their original recipes and lost forever. In addition to the lack of historical recipes the stories from the families that brewed these beers have been lost also to time.

After analyzing the affect that the beer industry had on each timeframe a case will be shown that human history would be dramatically different without this drink and in fact society as it is known today would not be possible without it.
Interview and Beer Production Project

An aspect of this thesis project is the interview and inclusion of his experiences as a Subject Matter Expert. His knowledge is invaluable when trying to understand a brewing world that is foreign to the majority of the modern populace and allows the readers to frame it contextually far removed from brewing roots.

Furthermore, to better contextually understand the brewing practices and the beer of the time two major brewing projects will accompany this work. One is the ancient beer predating all written records in an attempt to discover the original beer. This was deemed Rollin’s Oats and represents collaboration between a home brewer, Chris Phillips, a novice academic, Matthew Bougher and a Master Brewer, Ron Raike. Through the collaboration of these three minds and hours of research a recipe was agreed on and brewed. The results will be mixed into the thesis work when appropriate and a complete description of the work and results can be found in appendix A.

The second brewing project is representative of the time when this paper was written. Currently, in 2012 a major craft beer revolution is taking the market by storm. This has spun a home brewing industry that is extremely technologically advanced by any other craft industries measure with large amounts of specialized equipment devoted to its craft and hours of labor for results that only last as long as it takes to consume them. With this being said it would be negligent of this paper not include the knowledge that can be gained by brewing a Uber Craft Beer or UPTA or Uber Pale Tar Ale. This beer’s aim is to be included in one of the most important social rituals for the consumption of beer in America, the tailgate. The importance of the social gathering and the knowledge
gained from this work will also be spread throughout the thesis when appropriate and the complete project will be in appendix B.
Egypt Gives the World the Gift of Beer

The Egyptian tale of societal development is intricately tied into the story of the evolution of brewing. This is apparent in the stories of its people and throughout all phases of the development of Egyptian society. It may seem like a stretch to state that without the accidental discovery of beer, Egyptian society would have developed in a different path than it has to date. However, the following chapter will show how beer and brewing were essential to sustain the populace, fuel the economy, control the workforce and celebrate life into the afterlife. This essential trade went from the chance discovery in storage of wild cereal to a governmentally controlled industry that evolved and developed as fast as Egyptian society.

The details of how Ancient Egyptian brewers lived and the beer they brewed are points of contention. However, their existence is not debated. Although, initially their role in Egyptian society was considered by some as a minor side story and a later development in the Egyptian history\(^1\) evidence found recently alters this image. Included in this evidence is the scientific examination of the materials in storage jars and pottery found during the 20\(^{th}\) century and documented in such works as Robert Curtis’ *Ancient Food Technologies*. As a result of these studies modern scholarship has started to present an equal importance to the production of beer and the baking of bread in the role of the rise of Ancient Egyptian culture.

---

\(^1\) Many references attribute this misunderstanding to the complexity of modern brewing and the disbelief that the early Egyptians and or any other populace would have had the technology to replicate modern brewing techniques. This concern will be shown to be a mute issue as the brewing of beer at the time is a very simple process.
This relatively new research and archeological digs show that the results of the largest and most well documented finds of materials used in the production and consumption of beer predate most, if not all written language. Archeological finds include the large Granaries found in Egypt dating to the Fayum Predynastic period\(^2\).

These granaries were used to store the grain for both bread and beer production and due to this, were of a significant size. “One granary held up to 364 kg. of grain, both wheat and, especially, barley. Averaging between three and four feet in diameter and between one and two feet in depth, they were probably covered by straw mats” (Curtis, 79). To bring these numbers into an equation that is understandable, Ron Raike a Master Brewer states that twelve Kilograms of grain should be sufficient to brew near 19 liters of beer giving the technology and desired product of the time\(^3\). A granary of this size could have produced nearly 600 liters of beer from its storage capabilities alone. A liter of beer is comparable to close to three 12 oz beers.

The earliest dated grain storage areas were below ground.\(^4\) The Egyptians soon found a better way to store grain and started to go up instead of burying it in the ground. Grain storage buildings found at the Helwan site are more in line with the standard models that are known worldwide today. These grain storage buildings were vertical circular structures that reached skyward (Curtis, 101). This was a major technological advancement and from this date forward the only thing limiting the amount of grain that could be stored would be the technology of building materials. The higher the building

---

\(^2\) “The sites, datable about 5200-4000 BC are mostly camps located at the ancient lakeshore, similar to the sites of the Qarunian.” (http://www.digitalegypt.ucl.ac.uk/fayum/neolithic.html)

\(^3\) Ron Raike provided answers to specific questions via email throughout the process of this paper.

\(^4\) These buried storage areas were believed to be secured by merely lining and covering with straw mats. This would not have provided very much protection from the elements, other people or animals. Due to this they may have placed several of these stashes in close but separate areas to prevent all crops from being lost if one of them was found by someone or flooded.
could go, obviously the more grain that could be stored in one place. In addition this paper presents the theory that these new buildings were more tolerant to weather, secure from animals, and since centrally located could be guarded by a centralized force. It is a contention of this work that the newly efficient storage areas brought populations into a more stable centralized area that brought with it a more stabilized centralized population or in fewer words a community.

Once storage was centralized, it is a second contention of this paper that Ancient Egyptians turned their attention to developing more effective processing of this raw material and valuable commodity. Since large amounts could be stored in the same area, multiple families were now able to commune together to share the work. This allowed for the creation of a new type of building that required this raw commodity, the brewery/bakery. There is additional scientific evidence that these two trades often shared the same facilities and were fundamental to Egyptian survival. “Recovery of emmer wheat and barley remains, mixed together, may suggest that they were cultivated in the same field and consequently harvested, threshed and winnowed in the same manner” (Boulos, 3). If the grain for brewing and the art of beer production was not nearly as important to the everyday life of an Egyptian as bread making it is postulated that it is highly unlikely that this cohabitation of the same facility would have been allowed.

Bread making facilities require several unique and specialized tools as well as space for the workers. This is a shared trait of brewing facilities. In addition these two

---

5 The Shipyard Emporium in Winter Park FL is the perfect modern day example of just this type of facility. They not only use their facility to brew some of the most experimental and forward thinking beer but also maintain a full bakery producing artisan bread.
trades share some of the tools and labor skills. This may have been the contributing factor that led to these trades commonly sharing the same building.

While the cohabitation of the same building may have been beneficial, if one of these trades were to affect the other, it could be disastrous for the village. Mistakes from either trade could be damaging to the supply of both bread and beer. There are several risks that these early brewing and baking facilities had to contend with. One of the risks would be to the mutual yeast supply. At this time the two trades had yet to specialize yeast strains for their specific trade. If either group of workers made a simple mistake they would have to cultivate a new yeast culture before they could begin brewing or baking.

These mistakes could include anything from using all the available yeast without saving a sample to cultivate future cultures, to allowing a parasitic contaminate into the facility. These simple mistakes would devastate the established yeast supply of a facility, and unlike current times, there was not a grocery store to run to for a fresh yeast strain. This new strain would either have to be brought from a neighboring village or grown from wild yeast in the environment. Equally as catastrophic would be an accident in either of the ovens. These rudimentary cooking setups did not have modern fire control systems. If they were to suffer any fire containment failure they could easily take the whole facility with them. This would be far more damaging to the village. It would not only destroy the yeast supply but also take all of the tools, vessels, and ovens used in the production of either product. In spite of these risks Egyptians brewed beer where they baked bread, illustrating the equal importance that these linked trades had in these societies.
However, the same evidence that shows the value of beer and brewing also possibly helped to mask its early existences for years. This would explain how over the years the same small villages were able to maintain two very distinct trades without distinct evidence showing up of a brewery. If, as many maintain, all if not most bakeries were also the local brewery then every village that was seen to be developed as a result of the agricultural revolution of farming grain in Egypt can just as easily be attributed to the brewing industry without taking a large leap of faith.

The mere storage of grain was only one step in the production of beer. For the early brewer there was little technology and brewing was a labor intensive procedure. The following description outlines according to Robert Curtis how the Ancient Egyptians brewed beer in ancient times:

1. The grains are separated from the chaff through pounding in a mortar otherwise known as milling
2. These grains were sifted and the resulting material was referred to as a cereal
3. This was then processed on a hand quern grinding it to the desired fineness
4. This was then mixed with water and other additions including flavor additions or sugars to add to the strength of the fermentation were combined before kneading
5. This was then partially baked
6. This loaf was then added to a container with water and allowed to ferment
7. This entire mixture was then mashed through a filter and that resulting liquid was allowed to ferment further
8. This final product could be served as is or watered down if needed to adjust to the desired alcohol strength

This entire process as shown above does not involve any of the high pressure vessels or high heat ovens commonly used today to produce beer.  

---

6 It was generally agreed on in all the research consulted that breweries and bakeries co-existed in the same facilities it would be difficult to isolate who should get the distinction of being the first to state this hypothesis.
7 This was summarized from Robert Curtis’s Ancient Food Technologies.
8 This process is even more basic and requires less technology than the self-sufficient moonshiners of the American prohibition period who need large mash tuns and evaporator coils to make their basic liquor.
fermentation phase causes the release of carbon dioxide. This gas requires a release port if the vessel cannot contain this additional pressure. The vessels of the Early Egyptians would crack under this pressure and the beer would be lost. These fermentation vessels are believed to look like wine jugs with an open neck on the bottle.

![Figure 1 Photo by Lessing, Erich](image)

In addition, considering the above outlined procedure there were no requirements for any complicated metal working as of yet. Although, any beer produced in this manner would result in drinking vessels having various unique challenges to overcome. One of the major challenges was the ability to pour not from the nozzle but at a point on the side to prevent the solids in the jars from entering the mouth. Thankfully for the brewer the majority of these solids would tend to float or settle to the bottom. This gave birth to jugs such as the beer jugs in figure 1. While crude, they did eliminate the solids from the beverage much as a gravy separator keeps the floating oil out of the broth while pouring.

---

9 This was concurred by the brewing project Rollins Oat’s detailed in Appendix A
These solids were direct results of the brewing process since at this time few brewers ever transferred the beer from one vessel to another. This would be the only opportunity that a brewer would have had to filter out the solids and at this time was not a step in the brewing process and shown above in Curtis’s explanation of the brewing process from this time.

“Unlike bread large amounts of chaff are a common feature. Coarsely shredded husks occur in substantial quantities in large jars” (Samuel, 488). However, as the Egyptians developed better technology they were able to develop new methods to get the beer out of the vessel without any of the solids coming along for the drink. “An actual beer-siphon, found in a house also in Amarna, consists of two parts, each made of lead and connected by a reed straw” (Curtis, 140). This straw device possibly was used to stab through the crust of the beer and would only allow the liquid at the bottom of the bowl to be brought up through the straw to the drinker. This ability to drink from an open vessel led to the ability to share one drinking vessel amongst multiple drinkers as long as they had their own straw. This development provides a possible starting point for communal drinking areas and gatherings.

Now that the population could share easily from the same vessel, the next question is was this beverage intended to get one drunk? To answer this question a comparison of current American and Ancient Egyptian beer would need to be made. Currently, standard American beer is around 5% alcohol.\textsuperscript{10} “The strength of Egyptian beer, assuming it was similar to the four to seven percent alcohol typical of modern

\textsuperscript{10} An average was taken from the major brands at a local supermarket. While not scientific it was deemed a reliable measure of the percentage of alcohol in the beer most readily available to the average consumer.
bouza, was probably not too strong, though taken in large enough amounts could cause drunkenness” (Curtis, 139). However, there was evidence of weaker beers among the ruins leading one to ask why there would be multiple strengths since there was no competition among brewers in one village. The answer as Samuel suggests is that while the goal may have been a high quality twice fermented beer, there was also a substandard weaker product that could be made out of the initial fermentation batch, (Samuel, 490). This substandard beer was probably given to peasants and slaves reserving the better product for the citizens and higher ups.

The final question to be answered concerning the Egyptians persists. What were the Egyptians motives for brewing beer? The best answer is simple survival, “Egyptian men, women, and children on a daily basis consumed beer more as a food than a drink” (Curtis, 140). For the Egyptians this was not a mere drink of recreation but an important dietary discovery. This new beverage allowed them to convert from the nomadic hunters of their past to a more sustained omnivore existence with beer taking a prominent place in their needed daily caloric intake since, “… malting increased the caloric value of cereals, practitioners of early beer production were making the most of their harvest” (Homan, 84). These pioneers found a way to take a crop, increase its wealth, produce a stable product and communally share this labor in a societal setting. The next step was a product of human greed; they needed a way to track their amassed wealth.

The need to track one’s wealth brought forth the Egyptians’ first form of writing. “The origin of hieroglyphs is hidden in the Egyptian Predynastic or Archaic periods, and probably derives from pictorial “property” marks incised on pottery before firing” (Curtis, 108). This need to mark the pottery reflects the fact that they had yet to develop
currency and instead first based a compensation system on bartering value of labor in measures of beer. The values of vessels would be marked and then the vessels could be bartered with a common value (Curtis, 111). Populations would barter for objects directly if they had the means to trade and if not many would be forced to enter contracted labor.

The wages of the laborers would need to be paid and once again there was not a financial system to base these wages off so they were assigned a value in tradable goods. Curtis elaborates that while these wages were paid in beer and bread how they handled the excess is not known. For if an employee were to earn twenty liters of beer, that would not be consumable before it would sour and there would need to be a way for them to “bank” these wages or trade them for something they did need. In addition wages would need to be paid in incremental wages with their ratios multiplying to reflect the importance of the laborer (Curtis, 112).

If beer had become a tradable commodity then it would need to be brewed in large quantities. As shown previously, the first granaries could yield large amounts of beer but that would not support enough to supply larger villages. To accomplish this, larger breweries were built. The remains of the Hierakonpolis show evidence of a brewery that could support 300 gallons of beer production a week (Curtis, 107-108). This ability allowed their society to develop around the brewery and bakery and many societies did flourish in the Egyptian area. These societies would prosper in peace until the need for more crops or specifically fertile grounds to grow these crops caused them to bump into neighboring villages. Dynasties would form out of these property disputes and eventually take over the entire area. These dynasties controlled not only the crops but more importantly to many of the populace, the flow of the beer.
These Dynasties may have also controlled one more magical power when they gained control of the beer supply for as it is now common knowledge that certain foods, molds and specifically vitamins have positive effects on the body there was an interesting side effect of drinking the crude beer of the time. “Additionally, there is some speculation that Predynastic and Early Dynastic grain storage in mud-brick silos under some conditions may have fostered the growth of the Streptomyces microbe that produced antibiotic tetracyclines that would have been consumed in the form of bread and beer” (Curtis, 141). This innate ability to foster the growth of antibiotics could answer some of medicinal questions as to why the Egyptians led such reportedly healthy lives and did not manifest some common diseases that should have been rampant in their society such as influenza, colds or other commonly spread illnesses that plagued other societies and decimated populations. In addition to this actual physical benefit, do not believe that these powers were thought to stop at death. Boulos points out that not only was beer and bread present at every meal in Ancient Egypt, it was as abundant in the tombs of the wealthy. This ensured that this supply of nutritional beverage was available to the departed of this world (Boulos, 4). The evidence is clear, abundant and scholastically accepted that while one cannot determine the exact nature of the beer from this time or the lives of the brewers they were there and were clearly held in high regard as their products were among those brought into the after-life.

11 Although an attempt at recreating one of the first beers was made and can be seen in Appendix A.
Mesopotamia and the Near East

The Human social experiment may have started in the Fertile Crescent including the area later known as Mesopotamia and included many cultures over the thousands of years it existed. Cultures from this area have come and went without ever leaving a footprint in human history. However, from this area a major change came when humans started to see the benefits of a stationary society. “Humans also began to see that they could develop mutually beneficial social relationships with plants, when they came under cultivation, as well as with animals, dogs first and later, after agriculture was in place, cattle, sheep, goats, and pigs” (Curtis, 63). Along with this change and without an exact written history containing the date humans started to consume the fermented beverage known today as beer it is hard to know who started this first, the Egyptians or the Mesopotamians.

The people of the Near East may have started to brew beer before they established a permanent settlement. However, the creation of a permanent village would not be needed for these nomadic people to brew beer as the Rollin’s Oats project outlined in Appendix A shows that they only needed the material and five days to brew a basic beer. While whether or not they created stationary villages before brewing is currently debated there is more evidence being unearthed every day clarifying the historical picture of these cultures?

Archeologists such as Randi Haaland in his work Porridge and Pot, Bread and Oven: Food Ways and Symbolism in Africa and the Near East from the Neolithic to the Present cites research that shows proof of grains being allowed to soak before use. “This
may be evidence for early beer making, since the first process in processing beer is to let the grain sprout in a damp container. If this is correct, beer may have also have been an important item in early Near Eastern food ways” (Haaland, 174). The firm archeological evidence of this process is hard if not impossible to track down due to the fact that the majority of these products were degradable in nature and consumed. With these two facets considered any evidence that would appear to be left behind can easily be confused with grain storage that was accidently left in the rain.

Even with the lack of conclusive evidence, there is no doubt that beer was consumed in early Mesopotamian Cultures with pictographs for beer jars among the first archeological evidence found (Curtis, 211) “The earliest extant evidence pointing to beer consumption includes a stamp seal from Tepe Gawra, in northeastern Iraq dating to ca. 4000 B.C., which seems to show two individuals sipping beer through a straw” (Curtis, 105-106). This pictograph evidence shows that the role of beer in the early history of the area is in direct contrast to the role that wine plays in early Mesopotamia. “While there is abundant evidence for beer making and drinking there is almost no evidence, archeological or written, to indicate growing grapes or making wine in central or southern Mesopotamia” (Unger, 16).

Although, in spite of this evidence of beer consumption there is a clear lack of the early pottery work specifically identifying beer that exists in the Near Eastern culture. However, “it is in the literature, rather than in the archaeology and economic records of the ancient Near East, that beer leaves its greatest mark” (Homan, 86). This mark is a
solid footprint in the poetry and other surviving written records of their early history. One of the best examples of this is the early tale of Gilgamesh.\textsuperscript{12}

> Enkidu knew nothing about eating bread for food, and of drinking beer he had not been taught. The harlot spoke to Enkidu, saying: "Eat the food, Enkidu, it is the way one lives. Drink the beer, as is the custom of the land." Enkidu ate the food until he was sated, he drank the beer-seven jugs!-- and became expansive and sang with joy! He was elated and his face glowed.”

(\texttt{http://www.ancienttexts.org/library/mesopotamian/gilgamesh/tab2.htm})

The role of beer as a part of the nutritional diet of the early citizens in Mesopotamia cultures was often synonymous at times with another life giving liquid. “During the third and early second millennia B.C., the word beer carried metaphorical value for drink, and equation subsequently assigned to water” (Curtis, 211). Early beer was mostly water and barley mixed in a simple process. The fact that both items share the same name may have been because barley was available to Mesopotamians rather early in their development\textsuperscript{13} (Unger, 15). The item known as the main ingredient for the beverage of beer seemed to maintain its name whether or not it was fermented. Following this line of thought beer would clearly become available early in their history, “The first pictograph for beer from around 2800B.C. looks something like a jar of 25-30 liters, suggesting that already at that date there were jars dedicated to storing beer” (Unger, 15).

\textsuperscript{12} Drinking beer was a representation shown in this tale as one of the signs of what it is to be human and for a time the godlike person actually became human and gained mortality or the curse of mortality depending on how you look at it. Although it is clearly stated that with the gained risk of mortality he gained the knowledge that seven jugs of beer brought a warmth and happiness to his body he had yet to know. The cautionary tale also spelled out that this knowledge came with the price of his immortality. This could be an early cautionary tale towards the dangers of drinking too much beer.

\textsuperscript{13} One such development was reported in the fact that “Two branch barley was cultivated in northeast Mesopotamia as early as 7000B.C.” (Unger, 15).
In contrast barley in Egypt was cultivated later than the emmer wheat and this may explain the difference the evolution of beer had in Mesopotamia compared to Egypt.

If beer did exist first in Mesopotamia than that could explain how the Mesopotamians developed technologies not seen in the Egyptian brewing industry till much later. Michael Homan’s article *Beer and Its Drinkers: An Ancient Near Eastern Love Story* relates how the Near Eastern brewers were able to seal their vessels during fermentation, a technology that the Egyptian brewers did not seem to conquer till much later. Fermentation of alcohol causes the release of CO$_2$ gas that would have cracked the normal ceramic vessels. To solve this problem the Mesopotamians developed a fermentation stopper.

“They are round unfired clay objects with a small vertical perforation (the hole about ten millimeters in diameter) that would be placed in the mouth of the jar, and when the cloth was densely packed inside the clays stopper’s hole, it allowed gasses to escape during the fermentation process but prevented microorganisms from entering that would spoil the brew” (Homan, 89).

This also would have prevented insects from disturbing the process since at the time the storage areas were not sterile and exposed not only to the environment but also the living organisms in the area.

Much like the Egyptians the people of the Near East also developed specialized drinking vessels for their crude beverage. “One of the most famous and distinctive forms of this assemblage is the side-spouted sieve jug, commonly referred to as the Philistine ‘beer jug’” (Homan, 91). Although, once again these “beer jugs” were replaced by a superior filtering process for human consumption, “People in the ancient Near East often drank beer through straws. . . . Straws filtered out the barley husks and stalks, most of which would float on the drink’s surface” (Homan, 86). These straws were not only used
for beer however, as they are spotted in many pieces of early art. Their used varied across the board of beverages of the time but beer consumption is the dominant example in the pictures (Homan, 86).

With the existence of beer and brewing in the literature established, the level of importance of this beverage comes into question. Was this merely a beverage consumed to quench the thirst of the citizens or as with the Egyptians did brewing become an economically powerful industry that helped maintain a society? The one clue that can be seen is similar to the Egyptians in development in the economic systems. “In Early Dynastic time\(^\text{14}\), beer was provided as rations for labourers[sic] attached to the estates, as was bread. In general, it seems beer was an important food that was integrated into the mythology, religion and economy of the Sumerians” (Halland, 175). However, unlike in Egypt during the Ur III dynasty, Sumerian workers were paid in barley which they would then in turn brew into beer (Curtis,212). In addition a citizen’s ability to provide beer to others was a clear social marker. “Offering guests enormous quantities of food and drink was a way of signaling solidarity, indicating status, paying debts, and rendering tribute” (Jennings, 288). Clearly the economy of Mesopotamia was dominated by a system that rewarded those who controlled the production of beer and obligated those who did not.

With that said how important was beer to these cultures on a cultural level? “Beer had an integral role in religious observance in the ancient Near East. In addition to Ninkasi, several other deities were linked to beer and beer production, including Siris, Dumuzi, Enlil, Inanna, Hathor, Menqet, Dionysus and Ceres” (Homan, 84). The most

\(^\text{14}\) Early Dynastic times are 3100-2686 BC according to The Egyptian Chronology timeline provided by the University College London’s website.
important of the occurrences of religious poetry could be said to be the “Hymn to Ninkasi”. This tribute to the Goddess not only lays out her importance in their culture but also is a recipe for the brewing of beer in step by step instructions.\(^{15}\)

In other areas of the Near East such as Israel the religious relevance of beer was also surprisingly significant to some. This importance is often confused by the dominance of wine drinking references some of which may not be completely factual and may actually be translation errors. “Though often mistranslated as ‘strong drink’ or ‘wine,’ linguistic and archaeological evidence suggests that biblical Sekar is best translated as beer. Sekar, or beer, played a large role in Israelite religion and society” (Homans, 93).

There are several instances where once this distinction is made the role of beer shows up throughout the Torah or Old Testament for Christians.

“It was libated to Yahweh twice daily (Num 28:7-10), and Israelites drank it at sacrificial meals (Deut 14:26). While people who consumed beer in excess were condemned (Isa 5:11; 28:7; Prov 20:1;31:4), its absence signified a melancholy occasion (Isa 24:9), and it was prescribed to the forlorn to temporarily erase their tribulations (Pro 31:6)” (Homan, 93).

As seen in these references beer can treat a broken soul, symbolize religious sacrifices and was essential to social gatherings.\(^{16}\) This acceptance of the role that drinking and its effects played in society shows how its significance was starting to become apparent in the societies were it was prevalent.

Beer not only shows up in religious observances and events, similarly the recipe is partialy laid out in the Holy Book of the Israelites. “Cast thy bread upon the waters: for

---

\(^{15}\) Please see Appendix C for a complete text of the translated Hymn to Ninkasi.

\(^{16}\) In addition the cautionary tales show that even in ancient times people were known to act foolish and become the gossip of the water well the next day.
thou shalt find it after many days. 2. Give a portion to seven, and also to eight; for thou knowest not what evil shall be upon the earth” (Ecc, 11:1-2). Due to the fact it is not as thorough as the Hymn to Ninkasi it is often thought to be tale of charitable donations. However, “A more likely interpretation, given the process by which beer was brewed in the ancient Near East, is that Qoheleth is recommending both beer production and consumption in perilous times” (Homan 2, 276). As seen in the Rollins Oats project illustrated in Appendix A brewing is not a complicated process. This simple process could possibly produce a rudimentary fermented product. This evidence adds credence to the statement that “Ancient Israel, like its neighbors, produced and consumed massive quantities of beer” (Homan, 93).

It would be irresponsible to discount the role this beverage would have played in an early Israel citizen’s daily diet by simply saying that they preferred wine. For, by that logic a man who prefers filet mignon would never consume a hamburger, one may prefer the filet but practicality insists that there were other beverages consumed and the stability of the grain would have made beer a possible alternative when grapes were not available. This evidence points out that there was a valuable and extensive brewing tradition in Israel and Mesopotamia which makes sense due to the fact that all of their neighbors were brewing beer and for a time they would have had to helped brew the beer in Egypt as slaves.
How the Empire Gave Birth to Another: Beer Spreads Through Europe

Europe has dominated the brewing tradition including the large portion of the world’s 4,500 breweries (Fouhy, 45). However, tradition has kept this brewing method relatively traditional throughout its infancy up until the Benedictine and Franciscan monk revolutionized its brewing in the early Medieval Europe. Before this time brewing and beer consumption was brought to Europe through the influence of the Northern Celtic tribes use of fermented drinks and from the Roman Empire’s expansion across Europe. This expansion brought the drink of the people to all corners of the European Continent and along with the conversion of the populace’s religious ideals so went their conversion to the consumption of beer.

However, this mass consumption of beer brought with it many issues along with any of the benefits that it provided. Topics covered in this chapter include the historical account of the expansion of brewing influence across the European Continent, a discussion of how they controlled its production and the new found economic impact. Not only did the production create issues such as whom, with what, where and when would accomplish the brewing it also provided surprising new developments but there are also as many social issues to discuss.

Due to the increased demand this necessity as it was so often seen in human history was the mother of invention. However, these new advancements brought as many problems as benefits and these took brewing to places that the Ancient Egyptians would have never imagined. All of these sudden developments along with the urbanization of Europe drove the populace out of the darkness and into the hopped age of beer.
Yeast Infects Europe: Early European Brewing and Beer Consumption

The social implications of large quantities of beer becoming available took hold before beer ever left the near east and Greece as shown in previous chapters. The main issue that arose quickly was should man drink beer and other fermented beverages to become drunk on their mood altering abilities or for its nutritional value. This question was a major driving force of philosophical thought at the time. Aristotle, was so compelled by this topic he wrote a whole book dedicated to sobriety and another more pertinent book to this discussion *On Wine-Drinking and Drunkenness*. Of course, this was not be the first major work to look at and analyze not only the symptoms, but also the causes of this affliction. Aristotle quickly took to task many of the behaviors of the drunken man and also his motivations.

However, it was the biological impacts that alcohol consumption had on the body that really intrigued Aristotle. Included in this had to be personal experience because he seems all too familiar with some of the effects of large consumption of fermented beverages. In one line of questioning he takes on intoxication’s impact on sight. “Why is it that, to men who are drunk, the one often seems to be many?” (Aristotle III.10). This is clearly a question that would perplex the minds of the time and could be attributed to a demon interfering or a charm being placed on the person who gives in a drinks too much. However, Aristotle correctly attributed it’s root cause to an disturbance of sight far before he could biologically understand the medical implications of his statements.

Aristotle spent a large amount of time debating the physical effects of alcohol on the body he did also spend some time on the behavioral impacts of its control on the
mind. In one such question he asks, “Why is it that those who are very drunk do not behave badly, but those who are slightly drunk do? Is it because they have neither drunk so little that they still behave like the sober, nor so much as to become helpless, like those who have drunk a great deal?” (Aristotle, III.2). Even at this early stage of culture and societies it was a concern of the social commenter’s how to monitor the consumption habits of the members of the society and its impact on the body. Aristotle was by far not the only thinker of early European times to debate the power of drink.

Philo, the great scholar who crosses the near eastern culture of Judaism and the Greek and Roman cultures philosophy to promote a greater understanding of man’s obsession with drink wrote his similarly titled *On Drunkenness*. His work however, is more concerned with the implications of the soul and how drunkenness affects it not only with drink but also with thoughts and behaviors. One such question still presents itself today, why is temperament so widely controlled or the loss of control when one drinks too much? “So we see the King of Egypt, that is of the body, though he seemed to be angry with the cup-bearer who ministered to his drunkenness, represented in the holy books as being reconciled to him after a short time” (Philo, n.2, 208). This mere concern with behavior however was not at the root of his deepest concerns.

---

17 Two statements are often attribute to these times, however, they are very difficult to directly verify. One such comes from Plato, Aristotle’s mentor, “He was a wise man who invented beer.” However this quote does not appear in any specific text that can be easily verified and may never have been uttered by Plato. Lending further debate to this was the Greek preference for wine. The second quote came from Aristotle himself when he is attributed to have said that a man drunk on wine will pass out on his back and a man drunk of beer will pass out face down as to implicate that there was a preference to be drunk on one not the other. Either of these may be in fact truth or myths, all that is known is that these references are not easily verified.

18 Clearly, he is wrestling with the same issues that the modern observer can see in any person who over consumes and goes from wanting to fight his/her best friend over changing the song to a tearful proclamation of their love for each over singing that same song in a matter of minutes.
Philo spent much time in this work concerned with the implications that drink would have on the religious leaders who are supposedly the keeps of their congregations souls. Specifically regarding their ability to perform their duties, Philo points out that, “For surely it is seemly that men should come to prayers and holy services sober and with full control of themselves, just as on the other hand to come with the body and soul relaxed with wine is a matter for scorn and ridicule” (Philo, III. N.2,131). This presents the true ill-effect that drink can have on a society. For Philo, the effects of drink on the body caused only severe harm to those chose to lead a society whether it was in political decisions or religious guidance for much of these were still very intertwined at the time he wrote.

Philo only saw one reason that a man would choose to drink and that for him presented an ethical dilemma. “For such deliberately and under no compulsion put the cup of strong drink to their lips, and it also with full deliberation that these men eliminate soberness from their soul and choose madness in its place” (Philo, III.n.2,123). However, this as with many of the laws in Plato’s Republic, was a concern for leaders and not followers. These leaders have choose to lead a life of duty and that includes the duty to perform their responsibilities with a sober mind and a sober soul. For him also there were two sets of rules and the common man was welcome to choose the release their souls into drunkenness for they had no rule in the religious ceremonies at this time. This may be the first time that a scholar had assigned beer and spirits to the common man and the learned and leaders of society should abstain from these beverages.

This early philosophical debate on the effect of drink on the soul and mind have caused many later thinkers to either preclude drink from their diets or throw away any
notion that it was a detriment to the soul or mind and throw themselves fully into the warm embrace of drunkenness. However, as these two great minds wrestled with the topic it has not gone away and their contributions to the understanding of drinking are used to this day as basis for modern arguments on over consumption of drinks.

This debate by no means slowed the consumption of beer or the growth of the brewing industry throughout Europe. However, commercialization of this important industry came later as it is seen that, “[b]rewing in medieval Europe before 1000 was primarily a domestic activity” (Thomas, 332). This was an essential part of village life but did not hold esteem nor generated large profits for its craftsman. This may have been due to the fact that populations in Europe had not gone through the urbanization that the Egyptians and coastal areas of the Mediterranean Sea had nearly as early in their history. This may be best seen by one of the farthest European areas in Richard Unger’s explanation of early Holland demographics. “The Density of population was low in Holland in the fifth, sixth and seventh centuries. Presumably in these few small collections of houses in the countryside farmers, herders and fishermen carried on traditional brewing” (Unger, Holland, 11). This sparse population would have not placed a large demand on mass brewing and the entire brewing for a village could have been carried out by very few people, thus not needing a leader so much as one worker. “In 1300, brewing was low-skilled, low-profit, low-status work – that is, work then seen as appropriate for a women” (Bennett, 20.13). This may not be the only reason though that females controlled the early breweries. Some saw other reasons why women should brew the village’s beer. “Women’s control of beer or ale production and storage seems to have
been accompanied not only by its categorization as a foodstuff, but by a spiritual element as well” (Spitz, 36).

However, with beer being, “One of the oldest known processed foods, beer production was conducted by the village Ale-Wife; not the wife of a male ale-master, but Wife of the Ale itself” (Spitz, 35). This attitude showed how spiritual the transformation of grain and water into a life-sustaining/mood altering beverage held almost a religious importance in these early villages. In the early European village women held the role of spiritual advisors and providers for the spiritual well being of the village. Female domination of the brewing industry continued for several hundred years. Bennett reveals that once the commercialization of beer became a financial matter it was a mere 300 years until the control of this industry was wrested away from the female sex and became dominate by males (Bennett, 20.3). This change is directly attributed to the commercialization of beer and the desire for wealth and at this time both were gained through the Roman Church’s Empire. The expansion of the Roman Church’s power brought with it new power seekers and these individuals found a new way to exert control over the village and remove any current spiritual leaders including these Ale-Wives. “Dark Age witch hunts combined with sanitation spoilage19 to allow the Church and monasteries to wrest control of this high status and lucrative activity; industrial revolution mechanization completed the process of moving beer brewing firmly into the hands of men” (Spitz, 33).

---

19 Sanitation spoilage during this era was a major issue. This would be shortly address once the inclusion of hops allowed for storage of beer to become safer and more standardized.
However, this witch hunt and forceful removal of women from the masters of the brew house did not remove them completely from the brewing industry. “... women still worked in 1600 in the areas of the drink trade offered little status, skill and profit – they worked as unskilled servants in breweries, they carried ale on their backs from breweries to the houses of customers, and they retailed ale and beer supplied to them by breweries” (Bennett, 21.5). This fact led to the creation of images of the beer wench or the beer maiden and these images were for most urban areas in Europe during the 1600s till modern times fairly accurate. From this point on beer became major business and no longer just a food staple and truly for this signified the death of the Ale-Wife in all except the smallest villages. “But, except in isolated areas, they rarely worked as brewsters; they rarely enjoyed the high profits then available from the commercial production of ale or beer” (Bennett, 21.15).

The brewing industry came from the modest roots of village Ale-Wives to the cusp of major revolutions. The improvements in foundry technology and urbanization of populations would put demands on the brewing industry that the small village breweries could not meet and with the movement from a communal supportive village life to a more centralized urban environment.
Bringing Beer to Market

The commercialization of brewing was led by a surprising force, The Holy Roman Catholic Church. “It first became commercialized when monasteries started selling their surplus production in the early eleventh century” (Thomas, 332). It was in these monasteries that beer production grew for the first time in leaps and bounds since its inception. “The first large scale production of beer using more and better equipment, using the best of techniques and with artisans developing special skills to produce the drink came in the monasteries which emerged in the eighth and ninth centuries” (Unger, Holland, 11). The need to brew beer for the monasteries became a major force when they began to use beer to get through the Lent season. “As with many Christian rituals, Lent, a 40-day period of prayer, penance and abstinence, grew out of earlier pagan practices. The very name, Lent, is an Anglo-Saxon term that refers to the lengthening of the day as spring approaches. For Christians, it has always been viewed as a preparation for Easter” (Armelagos, C12).  

How did these supposed beacons of religious thought and guidance gain complete control of brewing industry for a time in areas where they were established? Through the invention of an agent for flavoring that, “Both rural and monastic brewers used all kinds

---

20 This Lent season of beer consumption also gave birth to another tavern food staple, the pretzel, which first was only consumed during Lent and was seen to represent a pair of crossed arms in prayer. (Unger, Holland, 11)

21 There is common tale of how beer became the drink of the monks during Lent. The common tale is that monks brewed a new stronger style ale than before they felt comfortable drinking this new better tasting and stronger beer they petitioned the Pope directly to allow for this beverages consumption during Lent. The trip was not kind to the sample they sent as it went through various elevation changes which dictated temperature changes that had an adverse impact on the taste of beer. It is the common contention that when this beer arrived it was so bad tasting that the Pope not only allowed the consumption of the beer but viewed it as a bodily punishment and instructed the monks to drink as much as they could of this foul tasting beverage. The fact that there must have been something that changed the beer on the trip was not revealed to the Pope and the monks gladly took this “punishment” in stride and strengthened their brewing practices.
of additives in the Middle Ages to give a specific taste and other attributes to beer” (Unger, Holland, 12). This flavoring agent was added in the third stage of brewing, and was otherwise known as Gruit. “The additives, which are mentioned in the description of the third productions stage, traditionally were spices; such as bog myrtle, rosemary, anise, ginger, chaff, or cumin. A mixture of these spices, called grut or gruit, gave the beer its particular flavor and a regionally distinct character” (Thomas, 333). This then gave, “The indisputable evidence that monasteries in fact did make beer comes from grants awarded to them of the right to use gruit” (Unger, Holland, 12).

The exact make up of Gruit is not known. “It is possible that part of the confusion over the term comes from the brewing method. In the early and high Middle Ages, rather than extracting nutrients from the malt in a separate mash tun before taking off the wort to boil it in a kettle, the two procedures typically took place in the same vessel” (Unger, Holland, 13). Furthering this confusion is that other ingredients were sometimes listed as Gruit including, “An act from the town of Huy of 1068 used the word pigmentum for gruit which suggest that it added color as well” (Unger, Holland, 13). Richard Unger attributes the largest difficulty in determining the exact contents of this gruit to the fact that often the documents would refer to it with different names and were written in many languages that are not easily reconciled (Unger, Holland, 13).

However, laws were passed that mandated this mysterious Gruit and “If all brewers had to use gruit, no matter how much beer that they made, then it was control over the supply of gruit that was needed” (Unger, Holland, 20). This control had to be decided somehow and the Empire made sure that they would be the controlling power. Unger points out that the authority of the Holy Roman Empire’s early control of the gruit
came from the fact that it contained at its basic state bog myrtle as an ingredient. This initially by default gave the Empire control since Bog Myrtle grew in uncultivated land and any land not granted to a specific person by the church was the domain of the church.

“During the eleventh century, the Holy Roman Emperor awarded local monopoly privileges in the production and sale of gruit, the Grutrecht, to dioceses throughout the empire” (Thomas, 333). This was also the later source of local authorities power gain when the Roman Empire relinquished control of uncultivated land which included the wild plant (Unger, Holland, 14).

“The example of monasteries as producers and as consumers of beer was not lost on contemporary village and town dwellers. Monastic practice proved and inspiration to secular producers” (Unger, Holland, 12). However, how would one ensure that the beer being consumed in the area was taxed and licensed? That answer became more difficult as trade expanded but one answer stilled laid with the gruit. “Because of the potential for using flavor as a distinguishing characteristic gruit became central to the way taxation of the beer market was organized” (Thomas, 333). It was the specific taste and smell of each local gruit that enabled those questioning the lawfulness of a beer to determine if it was brewed locally and the rightly taxed or if it was brewed locally and not taxed or as equally an issue brought in from another area denying the local authorities their rightful tax. The first to tax this was the monasteries and the Roman Empire by proxy. “The methods public authorities developed for taxing monastic brewing were the ones first used in taxing the new and gradually emerging commercial brewing industry” (Unger, Holland, 12). However, soon the responsibilities of brewing would change. “Without
doubt commercial brewing in towns by individual independent of any church connection was possible in Holland by the end of the thirteenth century (Unger, Holland, 15).

These new commercial brewing sites brought with them improvements in all facets of brewing. “Urban brewers could produce better beer and by 1300 were finding a market in the countryside for their superior product” (Unger, Holland, 25). This expansion was not limited to the local area around the newly prospering cities. “The brewing industry was to evolve in the fourteenth century from a local and then a regional to an international one as urban brewers exploited their advantages” (Unger, Holland, 25). Specifically once nomadic people were exposed by the expansion of the Roman Empire to the benefit of communal living and sought this out. “Immigrant German tribes settled in the Low Countries, attracted by the connection with the old Roman Empire and also by the sparse settlement (Unger, Holland, 11).

These new settlements required supplies of beer and when there was no brewer in the village beer would need to be brought in from surrounding villages. This brought the new challenge of shelf life, for this new international commodity they found their answer in a new ingredient. “By 1300 hops were widely cultivated in northern Europe and they were used among other things, in place of gruit or other herbs, in the making of beer. Any change in flavor that beer got from the addition of hops was considered less important that the greater durability the gave the drink” (Unger, Holland, 26).

Especially determinant to whether a village would be able to support a brewery or not was the water supply. “The usual pattern from the beginning was for breweries to be located on major waterways, both to guarantee supplies of water but also to give easy
access to raw materials and easy access to markets for the bulky final product” (Unger, Holland, 17). This was a major limiting factor to the production of beer and brought those seeking this industry as a way of life to the shores of a freshwater supply. However, this was not the time of entrepreneurship that one may think as the equipment needed to brew new beers were not cheap and without the backing of the church there was no financial place for startup brewers to turn. One major cost was as Unger points out the most important discovery and piece of equipment, the copper kettle. This item was essential to mass brewing process and also represented a large portion of the initial investment in starting a brewery (Unger, Holland, 20). In addition to the kettle, Unger lays out the additional equipment of this time being the cooling troughs that may have been hollowed out trunks and barrels to store and transport the finished product to market (Unger, Holland, 20).

All of these would clearly be beyond the wealth of the average craftsman at the time and to keep the brewing in the power of the people a surprising communal idea came to exist. “In some cases the government supplied common equipment. The investment was recouped through fees for use of kettles or tuns or barrels” (Unger, Holland, 17). This allowed individuals to begin brewing without any servitude that many other industries or past behaviors dictated.

This new secular industry became the major driving force in many communities. “In Holland at the end of the Middle Ages and through the early seventeenth century, brewing took on a central place in daily life” (Unger, Holland, 11). This as seen before was not a male dominated craft while it may have become a male owned business. Women were so important to making beer that in a number of Holland towns in the
middle of the thirteenth century a limit was placed on the quantity of beer for which a man could be responsible (Unger, Holland, 16). This also gave birth to a new business idea, for when someone wants to consume a beer where did one go. Well, as cities grew so did the need for new social meeting areas and brewing may have given us one of the best examples of an area where all could gather? “There were taverns often even in the same building as the breweries or supplied on some regular basis by certain brewers” (Unger, Holland, 25).

However, brewing was not without its faults. For a time in Bavarian history the thirst of the population out gained its ability to grow wheat. In response Bavaria passed one of the most strict business regulatory laws to date. “In fact, many of Germany’s 1,200 breweries still follow recipe guidelines set by the German Brewing Law of 1516, a law that remained in force until 1991” (Fouhy, 45).

Reinheitsgebot (Rine-hites-ge-boat)
German Beer Purity Law, 1516

We hereby proclaim and decree, by Authroity of our Province, that henceforth in the Duchy of Bavaria, in the country as well in the cities and marketplaces, the following rules apply to the sale of beer:

From Michaelmas to Georgi, the price for one Mass [Bavarian Liter 1,069] or one Kopf [bowl-shaped container for fluids, not quite one Mass], is not to exceed one Pfennig Munich value and From Georgi to Michaelmas, the Mass shall not be sold for more than two Pfennig of the same value, the Kopf not more than three Heller [Heller usually one-half Pfennig]

If this not be adhered to, the punishment stated shall be administered. Should any person brew, or otherwise have, other beer than March beer, it is not to be sold any higher than one Pfennig per Mass. Furthermore, we wish to emphasize that in future in all cities, markets and in the country, the only ingredients used for the brewing of beer must be Barley, Hops and Water. Whosoever knowingly
disregards or transgresses upon this ordinance, shall be punished by the Court authorities’ confiscating such barrels of beer, without fail. Should, however, an innkeeper in the country, city or markets buy two or three pails of beer (containing 60 Mass) and sell it again to the common peasantry, he alone shall be permitted to charge one Heller more for the Mass of the Kopf, than mentioned above. Furthermore, should there arise a scarcity and subsequent price increase of the barley (also considering that the times of harvest differ, due to location), WE, the Bavarian Duchy, shall have the right to order curtailments for the good of all concerned.

Signed: Duke Wilhelm IV of Bavaria on April 23, 1516 in Ingolstadt.

Translation of Reinheitsgebot from “History of German Brewing” By Karl J. Eden, Zymurgy magazine, Vol. 16, No. 4 Special 1993

This law and the control of gruit were major forces in the brewing industry. These issues did not manage to slow the growth of the industry neither did some of the other major societal issues of the time. Unger illustrates further throughout his book on the History of Brewing in Holland, 900-1900: Economy, Technology and the State, that various threats hurt the brewing industry. One of these was the resentment on the loss of taxes that local lords suffered due to the availability of foreign brewed beer. This led some to tax imports while others banned them all together. In addition, another major setback for the revolution and industrialization of a global beer trade was the Black Death or Plague. This clearly decimated the European population and brought health concerns to the forefront. None of these caused the beer market to go flat and in spite of these issues it made the leap across the pond next. For from this time till the mechanization of the brewing process little changes in the brewing industry or its role in society in Europe: Taverns strengthened their positions as central meeting points; beer recipes became more distinct to the brewery; regions identified with their beers, but revolutionary changes to brewing would have to wait for another revolution.
From National Beverage to National Demon

The discovery of America brought with it a new world for the power of beer to conquer. It was already the primary beverage of all of Northern Africa, Europe and was in the process of being spread through the rest of the world by the European explorers. It now was set free along with the pilgrims on the new and unsuspecting shores of Northern America. Some of the earliest steps taken in each new village were the establishment of a malt house and brewery. As the country grew into an independent identity they sought to grow a national brewing tradition that was separate from their European brothers. However, as the country grew they forgot the important role that beer and brewing had played in their history and the common man image of beer was exaggerated. This allowed for movements such as the anti-saloon, temperance and eventually prohibition to grow in America. This failure in social domination of a populace by a minority opinion in government can be seen as culmination of a select few that failed to see any of the positive factors that beer brought to society and only the ill effects that its abuse brought. However, as it is well known the country did bend to the will of the public and it did return out of the darkened shadows of prohibition, but it was never the same. There were surprise supporters to this movement that gained by its implementation but that came centuries after beer was first brought to America.

The London Company saw the American country side as an important settlement but not as important as its sugar rich island neighbors. This being said, they still did attempt to provide for the needs of its settlers and that was the need for beer, the only safe drink the English had relied on for years. However in the early 17th century it was the misconception that ingredients for traditional beer were already on the shores of America.
The lack of essential ingredients in early beer recipes could be the most significant reason why the native populace had no idea of the beer that the English spoke of. This was a significant issue for the early settlers who counted on the beer as a safe liquid and a source of nutrition (Baron, 6). As soon as it was known that they would need to bring with them the ingredients to produce beer all immigrants packed beer brewing supplies including items that were once highly sought prizes in the brewing tradition, copper kettles (McWilliams).

However, once beer was brought to the new land and breweries were established it was immediately apparent to the new “Puritan” settlers that with the freedom new land presented some took this as open license to become drunkards. To combat this by the 1640’s the Massachusetts Bay Colony had established laws concerning how and who would be permitted to sell beer (Baron, 11). This was the first step into the temperance movement and in stark contrast to a following movement actually sought to establish a strong tavern reign so that they could centralize the control of alcoholic beverages. Taverns were essential to the populace for meeting places of some of the most influential members of the community. One such tavern being the famed Tun Tavern in Philadelphia. Members of the Masons that met at this tavern included many Captains and more notably one of the most famous citizens in American history, Benjamin Franklin who is listed as a member on June 28th, 1749 (Sachse, 118).

Well into the 18th century American settlers were dependent on English suppliers for not only the supplies to make beer but also the actual beer that they grew up with.

---

22 It is commonly held in the Marine Corps that on November 10th, 1775 this was the birthplace of the Corps and the site now houses the Military Enlistment Processing Station in Philadelphia. This claim is not disputed but none the less is not factually verifiable.
While they were making headway into the brewing of their own beer it would not taste the same without the hops and also lacked the stability that a hopped beer contains. There were native hops but the time to cultivate them to appropriate levels had yet to be taken (Baron, 16) This did not deter the settlers throughout the coast from Virginia to New Netherlands. The majority of the brewing industry at the time was small household operations through the 1650’s (McWilliams).

However, as the population continued to grow there was demand for larger breweries to supply the populace. This brought with it a fundamental basic source of income for the public funding of local governments, tax on beer. There were clear distinctions between the tax levied on strong beer and weak beer with the tax reflecting the quality and use of beer. Strong beer or the more expensive and recreational beer brought with it a tax six times that of the common beer that was consumed all day (Baron, 35). In addition there were several other laws and regulations that not only raised funds but ensured these houses were of good standing and followed the thirty laws that were in place. One such law being, “All public housekeepers had to be recommended to the Governor by the county justice before they could buy the necessary license to keep a tavern and sell liquors, and the fee of three pounds if wine was sold and two pounds only beer and whiskeys were dispensed remained practically unchanged until the Revolution” (Graham, 318).

23 It is worth noting that while the older breweries were established in modern day New York it is the breweries of Philadelphia and Pennsylvania that held on longer. The oldest operating mass brewery in the country being D.G.Yuengling and Son Brewing Company is located in Pottsville PA. This fact has not been disputed by any brewing company in the country and left to stand until a company comes forward to challenge this claim. In addition it is reported that these Philadelphian Breweries were brewing beer of such high quality it was of higher demand in the Caribbean than English beer (Baron, 45).
However, as with any other “civilized item”\textsuperscript{24} brewing equipment, storage devices and all things to do with brewing beer were in high demand and extremely scarce. It was not till manufacturers of these devices popped up did the American brewing industry have the tools to stand on its own. This first occurred in the 1730’s to 1750’s with a major glasswork factory establishing itself in Massachusetts and more spread throughout the colony including Pennsylvania and specifically an area just outside of Philadelphia in Lancaster County, (Baron, 61). Although, these new facilities did not change two essential facts: One, brewing was still essential to the safety of the populace from the tainted water in cities such as New York; two, even with all of the growth hops were still not available in sufficient quantities to supply the brewing demands of the colonists (Baron, 71). While the birth of the manufacturing plants did help the brewing the next major advancement would be years off. It would not be until the invention of mechanical refrigeration was there another major advancement in the beer industry (Carroll, 158).

With the establishment of manufacturing plants for proper brewing devices and the growth of the fledgling government it may be assumed that brewing took a back seat to the war when America declared its Independence from England. This could not be further from the truth. In fact one of the strongest oppositions to the “Townsend Acts” was the open defiance of the populace to provide supplies including beer to British troops (Baron, 91). Shortly after the war started rations and supplies would be in short supply. Included in this was beer, a beverage that the populace and soldiers did not view as a

\textsuperscript{24}Items made of refined natural resources that required not only the skill to craft them but also the tools were in demand until the manufacturing of these items began to rise to the same standards in the new world. Imagine ordering everything from soap to corks for your bottles from England and having to wait for your order to arrive by boat, be filled and returned by boat. This would not make for the most efficient supply of material to facilitate any craft.
luxury but a necessity. However, it was with foresight that some published and encouraged a return to the more rudimental home brewing techniques of the past. Included in this was the publication of simple brewing techniques including substitute vessels to brew in and even some of the most famous citizens sought to make simple brews (Baron, 95).

Also, it is clear that during the war and shortly after no less notable of a citizen than the President himself, George Washington, was in correspondence with brewers concerning the impact that the drought would have on the barley crop that year (Baron, 67). Although, contrary to popular folklore Samuel Adams while the namesake of one of the largest breweries in America did contribute to the brewing industry through the continuation of his father’s malt house he was not a brewer and not very successful at the malting business (Baron, 76).

During the Revolutionary War one of the major wages promised to troops was as in the early human history, was beer. However, these soldiers fighting for the future independence of America would often go without this beverage. An unexpected source of beer came to the rescue. Despite the modern day image of rum swilling pirates the privateers of the colonies of America knew the importance of the supply lines from England and diverted vessels with cargo including large quantities of beer from the British (Baron, 103). This technique served a twofold purpose in not only supplying the Colonial troops of America with supplies but would deprive English troops of their beloved beer. The lack of the comforts of home effects soldiers in different ways and being on the other side of the ocean without their beloved beer could have a dramatic
effect on morale. However, following the war, beer would begin to lose its luster and until the industrialization of the industry became more prevalent it continued to lose ground to newer beverages including whiskey and rum (Baron, 124).

This however changed dramatically in the 1800’s when Germans immigrated to America in large quantities and brought with them their Lager beer (Baron, 178). The resurgence of American brewing would be short lived with the overwhelming shadow of the temperance movement looming over the brewing industry, ready to bring the noble brewing tradition in America to its knees. This movement started early in American history with religious leaders beginning the movement at the turn of the 18th century and strengthened their original opposition to just ardent beverages or those known today as liquors, to include beer and wine by the 1850’s. This movement would gather political support and by 1836 the terms “Total Abstinence” were being mentioned in political arenas (Baron, 193). The first shot over the bow of the temperance movement was actually fired by a brewer when Edward Delavan was sued for libel by John Taylor. Taylor accused Delevan a know prohibitionist in the attempt to destroy the name of his business. This ill-fated suit was sabotaged from the start either by the lack of the modern legal machine of today or a purposeful attempt to ensure that his case would not be successful through bribery and delay tactics (Baron, 195). No matter the cause, The Temperance movement and Prohibitionists gained their first major legal win. This was shortly followed by the railroad passing of prohibition laws in Maine, Rhode Island, 

---

25 During the two years that I personally served in Japan there were many items I was forced to go without. However, the United States Marine Corps would utilize shipping channels to import familiar items and ensure that they were at purchasable prices for the troops stationed there. One such example was Corona beer that sold in the local area for close to 7-10 Dollars a bottle compared to local beers that would sell from 3-5 Dollars in 1995. On base at Marine Corps Air Station Iwakuni a Marine could purchase twelve packs for less than the cost of one bottle on station.
Vermont and others but were all repealed by the courts in an epic level of foreshadowing as unconstitutional and were reversed shortly after their implementation.

Although the Temperance and Prohibition movements were gathering steam breweries were still popping up across the country. American had seen its population grow 8 million in size in ten years and to serve those 1 new brewery opened up for every 10,000 people (Baron, 211). This would still leave vast amounts of growth for the brewing industry. The American government did not let this fact go unnoticed and began to tax and regulate the industry with new stronger and more enforceable taxes. During the second half of the 19th century the Prohibitionist movement latched on Anti-German feelings and began to assault their lagers and beer drinking directly in the hopes to gather members that may not be anti-beer but were surely anti-German (Baron, 221). In addition some members of society either felt social pressure not to start brewing companies or understood the growing attempts to ban beer and choose to invest their time and money in other industries (Carroll, 169).

To combat the raise in taxes, support new technology and form a uniformed front the brewers formed several brewing associations with the surviving one being the United Brewers Association. This would be the face of the brewers in politics and the public. Their ability to unite the brewers meant a new strength, but they did not see the impending doom ahead. These United Brewers would also allow many smaller companies to merge and form larger brewers better suited to supply the National Beer markets. These larger more industrial and commercial facilities spawned company owned beer gardens and saloons to sell their drinks. This new consolidated culture presented too easy of a target for the prohibitionist to attack directly (Baron, 273). This was a major
flaw in the plans of these brewers. They not consolidated large numbers of people and restricted their ability to drink into these larger social settings. This led to the consolidation of any unwanted business to these same facilities and put a spot light on the unwanted characteristics of drinking. This problem was amplified in the late 1600’s when hard liquor as well as beer and wine was sold in these same taverns. In almost every town after they started selling stronger spirits drunken stupidity was to follow often resulting in the death of the offending party (McWilliams).

Instead of a local member of the neighborhood who would brew and provide the beverage as a staple with certain stronger brews being reserved for special occasions these facilities were in the business of turning the highest profits for their national corporate bosses. With all traffic coming to and from a few Public Houses or Pubs and Saloons in a locale it was easy to blame all crime on them. The urge to nationalize brands and to form large corporations to rival that of other industries failed to take into consideration the rich and valued tradition that the brewer played in the social, economic and political realms of the locales it existed in. This newly formed association did not maintain any of its grand history and only looked forward. There was no mention in the meetings that the local Public Houses and Taverns were not only places for the towns people to eat but also served as the real heartbeat of the American Revolution. There was no reluctance to close the neighborhood center that would allow patrons who its new all their lives to run credit terms over harsh winters when they were presented with large sums to join this new movement.

The industry failed itself by only looking at beer and brewing as a commodity and an industry to create that commodity. The largest brewers looked at this as an industry
that if it died they would move on.\textsuperscript{26} While local breweries were gaining market shares by managing the local saloons and only selling their beers the newly formed national shippers looked for a way to strengthen their position. One way to do this was to do away with the local brewer. They even went as far as supporting the Anti-Saloon league with the hopes of separating the manufacture and selling of beer. One of the most famous names in American brewing August Busch wrote President Coolidge not to repeal prohibition but to modify it by closing saloons that brewed their own beer, (Stack, 423). While the local brewer that held out had only known one trade most of their lives and would die along with their brew house if this trade went away. These people had no voice at Washington or even the state levels and went unheard. This was closely the death of the brewing tradition in the United States of America and as goes America so does much of the world. The attempted murder of the noble history that the role beer and brewing had played in history can best be seen in: .

\textbf{AMENDMENT XVIII}

\textit{Passed by Congress December 18, 1917. Ratified January 16, 1919. Repealed by amendment 21.}

\textbf{Section 1.}
After one year from the ratification of this article the manufacture, sale, or transportation of intoxicating liquors within, the importation thereof into, or the exportation thereof from the United States and all territory subject to the jurisdiction thereof for beverage purposes is hereby prohibited.

\textbf{Section 2.}
The Congress and the several States shall have concurrent power to enforce this article by appropriate legislation.

\textbf{Section 3.}
This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of the several States, as provided in the Constitution, within seven years from the date of the submission hereof to the States by the Congress.(Archives.Gov)

\textsuperscript{26} There is much controversy with the following statement as it seems counterintuitive to make.
This amendment to the US Constitution placed the brewing industry into a coma. Few breweries changed their tactics and fought to state that beer was not an intoxicating beverage and even attempted to skirt the law by brewing near beer for a time of less than 1% alcohol by volume (Baron, 313). Other breweries attempted to retool and move into new ventures ranging from spaghetti making to storing of furs. However, few and far in between could afford to pay to have their lines and machines converted to the new facets of business and many closed their doors for good (Baron, 315).

Several unintended consequences to the passing of this law were not considered when they passed the law. One was the changing of the consumption habits and brought drinking into the house and out of the saloons and taverns in addition by bringing drinking out of the saloons a larger portion of women began to drink. Until this point many women either felt uncomfortable entering saloons, avoided them or used side “women” entrances (Powers, 47). A third result was while beer consumption went down liquor consumption did not change as much and liquor drunkards could still find sources of their beverage if they so wanted (Blocker).

This law was in direct contrast with the will of people as can be seen by the popularization of the moonshiners; speak easy’s and open defiance to the enforcement of the law. It did take years for the repealment forces to become organized and mobilize a vote to abolish this law. This movement was so unpopular that one of the most recognized authors of the time, Ernest Hemingway immortalized Wayne B. Wheeler the leader of the Anti-Saloon league as a villain in a conversation in *The Sun Also Rises* (Schwarz, 181). There were several measures put forth but finally there was compromise and even the Anti-Saloon league agreed to allow for the brewing of 3.2 percent beer in
1932 (Baron, 320). This was the beginning of the end for prohibition and was finally struck from the books with the XXI Constitutional Amendment. This repealed the provisions put in place to stop the brewing industry.

Post prohibition brought with many challenges since this industry was left in the past while the world progressed into the age of machines. This included new technology in manufacturing, differing tastes not accustomed to beer after over 10 years without beer and finally the logistical world of the automobile. One major change that was introduction of the canned beer, and with it the beer industry changed drastically. Due to this many other considerations including what had to be some reluctance to return to the saloon lifestyle that brought about Prohibition in the first place was the change of sales from 75% of beer being sold as draught in 1934 to nearly 50% in 1941 (Baron, 326). Through all of the change one thing did finally become apparent to the American populace. The society did prefer life with beer to that of a life without this rich and historical product. However, prohibition did manage to almost drive the brewer out of business completely and replace him with a corporate stock holder.

The biggest effect that prohibition did have was clearly the reduction in the diversity of brewers in America. In 1880 there were as many as 2,474 operating breweries, by 1980 that number was reduced to 45. In addition shortly after the repeal of Prohibition the major four brewers only accounted for 11% of beer produced but by 1982 that percentage grew to 78%, (Carroll, 159). There may be close to the same amount of beer being produced shortly after the repeal but the numbers of independent brewers reduce greatly. This was the result of many learned and trusted minds failing to grasp the importance that beer and brewing played in a major society. The political and social
aspects were clearly seen and recorded but due to the major attempts to hide the costs that the enforcement and effects Prohibition had on the economy its economic effect may never be known. This period may be the darkest days that the brewing industry ever saw and from here a glimmer of light began to be Crafted.
Craft Beer Revolution

The Craft Beer Revolution reflects the greatest compliment that any industry can have. For there to be a craftsman movement there must be a level of skill involved in that industry to reflect the need to return to craftsmanship. Without this level of craftsmanship there would be no gained value in returning to the methods that spawned the current methods of production. For example one could look to the Arts and Crafts Movement of the late 1800’s to early 1900’s. This movement brought back the era of handmade furniture when the world was looking for mass produced in-expensive low quality products. For the few that understood the trade and work involved in this method of crafting these works, knew that they could turn bigger profits by employing low skilled laborers but instead choose to produce works of love. This is reflected in the current model of the craft beer industry. When asked why he choose to become a craft brewmaster Ron Raike best illustrates this love with his answer, “Larger breweries are production facilities or factories for beer. I did have a job with one for sometime but the creative aspect isn't there for the most part. Harder work and longer hours at this level but rewarding and doesn't seem like work.”

It would be easy for these master brewers to accept a well paid job at a factory overseeing large batch brews that’s sole goal was not to vary one bit. However, as much as the yeast is living when it joins the process of brewing these brewers view their trade as a living process that changes and evolves with the guidance of the master brewer. Without these brewers’ beers such as the Egyptian influenced rebirth of an ancient beer, the fall favorite of pumpkin ale or the combined effort of major players in the market to bring a champagne beer to market would never have been realized. The only downfall to
this craft is it has no lasting impression to leave behind besides the memory of those who
are lucking enough to partake in one of these beers as unlike furniture or sculptures once
it is consumed by the first person it is gone forever and unlike wine beer does not get
better with age so there is no lasting vintage to speak of. If this year’s pale ale was the
best to be made in decades it only lasts in reviews.

One other correlation can be made between the Arts and Crafts movement that
proceeded the Craft Beer Revolution by 100 years, is that of the fact there are Fathers,
Heroes and Villains. The Villains are easy to spot in those who demonize beer as a
common mans drink and surprisingly that would be the largest benefactors of the brewing
industries. Compare the advertising of the two largest manufacturing breweries to that of
the largest American Craft brewing manufacturer and it is clear to see what is meant by
the statement that Inbev or Anheuser Busch or SAB Miller Coors or South American
Brewing differ fundamentally from that of The Boston Brewing Company or Samuel
Adams. The ads of the big two suggest that everyone is drinking their beer and it relates
to all. Samuel Adams however is careful to only promote the quality and uniqueness of
their beer. By portraying beer as a common mans drink it lowers its status as they do not
spend time marketing their beer as a well crafted beverage for those who appreciate the
finer things in life. In addition the larger manufacturers have been seeking to diversify
their message since the repeal of prohibition. In the few years following the repeal they
immediately sought to target women in their advertising (Corzine, 844). Whether it was
through identifying them as the main purchaser of beer for their man or specifically
targeting them to purchase beer the message was the same. You can trust a national
brand.
However, by constantly watering down beer and making it more palatable for everyone they alienated their most loyal supporters, the true beer fan. Although, starting in the 1965 brewing saw saviors who sought to bring back the honorable tradition of the brewmaster to the trade. The first major step in this direction was when former brewmaster of Anchor Brewers and Distillers, Fritz Maytag III\textsuperscript{27} purchased his former employer. He sought to bring this historic brewery founded in the 1860s back to its former glory (Hoovers, Anchor). Fritz along with Jim Koch of the Boston Brewing Company or Samuel Adams are often referred to as the fathers of the craft beer revolution.

Samuel Adams while a craft brewer at heart has managed to sell over 2 million barrels of its products a year (Hoovers, Boston). While this may sound like a large brewer there are certain reasons that they are still labeled a craft brewer. One of these is their small batch brews that include Samuel Adams Imperial Series and a beer that was a complete roll of the dice, Infinium. This beer was collaboration between them and Germany’s Weihenstephan, according to the label on the bottle the world’s oldest brewery.\textsuperscript{28} This company’s meager roots started with a recipe from Jim Koch’s grandfather and a kitchen. When Koch decided to go all in he invested $100,000 of his money and $300,000 of his family and friends and turned it into a 464 million dollar company as of 2010 (Hoover, Boston).

\textsuperscript{27} Fritz Maytag is an heir to the Maytag fortune so funding was not an issue.
\textsuperscript{28} This beer was sold at New Years and represented an attempt to marry the flavor profile of champagne with that of the brewing process of a beer was a wonderful venture that turned out a product that was completely unique and had a limited run with the local store only receive 6 bottles. These bottles sold for $25 apiece.
The public hero of the craft brewing tradition is Sam Calagione of Dogfish Head Brewing. He has through his love of beer sunk his life, money and talents into his small batch philosophy. This can be seen in his historical line of beers that included at one time or another an Egyptian beer called Ta Henket, which was researched by Dr. Pat Mcgovern an archeologist that helped to decipher Egyptian hieroglyphics, (Dogfish) and resembled in inspiration Rollin’s Oats as described in Appendix A. \(^{29}\) He went as far as travelling to Egypt to capture the live yeast in the air. He also consulted with the same archeologist to create Chateau Jiahu an ancient Chinese influenced beer, (Dogfish). In addition through his love of pumpkin he has presented and to some peoples opinion corrupted the autumn flavor profile of many beer lovers taste with pumpkin ale that is released every fall. He has been featured on American Beer, Beer Wars and was the featured personality along with his brewery and staff for the series Brewmaster, (IMDB).

While Sam may be the public hero the true artisanal brewers and real revolutionists are the brewmasters in brewpubs around the country. These brewers are bringing a renaissance to the brewing industry returning to the times when the brewmaster was at the same place as where their beer was sold (Carroll, 159). These brewmasters are responsible for every aspect of their beers from ingredients to styles and techniques used to brew the beer (Margolis, 28). This includes the trials of building the brewpub. Ron Raike recently went through this process in his experience there were unique issues that more common facilities would not have had to face.

\(^{29}\) His beer did differ in stark contrast as he experimented greatly and found a modern day beer that would be commercially viable that was inspired by the recipe he found where Rollin’s Oats sought to maintain historical accurate.
“Trades during construction are used to building and designing square rooms. Breweries require specific equipment and considerations for building out and had to educate why they couldn't just build me a room with a hose bib on the wall and expect it to work as a brewery. So from the paper design phase to the touch up work before opening i (sic) had to educate trades on why it needed to be that way and not just cause i (sic) wanted it that way.”

This return to craft brewing is becoming prevalent across the country as finally some laws that remained on the books from prohibition are stricken. In many cities now people will not only go to the brewpub to purchase beer while drinking at the pub but also take beer home from that same facility. This beer can be bottled or canned and usually the labeling resembles the personality of the brewpub and more importantly the brewmaster. These labels range from local landmarks to dark images that would be better suited as a gang member’s tattoo. However, in addition to bottles and cans Americans have come to know there is also the Growler which is either a half or full gallon glass jug that is filled at the facility and taken home by the patron at the end of the night. These Growlers allow breweries that are too small to bottle their own product to still supply the local area with their beers. This process alone maybe the closest return to the brewing process that helped to build human society and harkens back to the beer jugs of the Egyptians.

Although, as with any local craft, once someone sees that it can be done and done well they want to try their hands at it. This has brought about the homebrewing industry. The companies that cater to this range from stores that sell premade snap together kits to specialized stores that sell the most basic of items to brew a good beer. There are also kits that are in between. These kits give the home brewer a little more flexibility and are

---

30 This type of store was utilized to gather some of the ingredients for Rollin’s Oats or Appendix A.
meant to be reused.\textsuperscript{31} This new industry has been growing steadily out the ruins of the mass brewer and is an exciting return to the personal stake a person has in the beer they consume. For when one understands the labor and craftsmanship it takes to make a simple but good beer one can appreciate better the artisan that crafts it.

However, with all this said the larger brewers do not seem too concerned with the return of the pub yet. They have a strangle hold on all mass distribution channels from the logistical standpoint to the contracts. Almost every stadium, chain restaurant and concert venue has a product agreement with one of the two major brewers locking out any local completion. With this said they have noticed a change in tastes with both SAB and InBev release craft style beers starting in the last decade. They go so far as to not place any of their company’s iconic labels or names on the beers to maintain the air of independence and craftsmanship of a microbrew. However with Blue Moon being owned by SAB and Shocktop by InBev, the two most commonly ordered heffeweisen style beers in America are no more than reactions from large brewers to a loss in profit. These beers while different in flavor profile do not reflect the craft beer movement but may be part of a new reactionary movement.

The dark days of brewing that were done under the cover of night during Prohibition may be over. However, brewing has not returned to the level it was once in America. It is these craft brewers who are seeking to bring it there. Ron believes that craft brewing is head more local, “More breweries opening in your back yard and people going back to getting things local and supporting the neighborhood brewery and local economy. Also expansion/exposure into obscure beer styles and hybrid beer styles that have not

\textsuperscript{31} This kit was purchased and used for Appendix B the UPA.
been explored. Many traditional and historical beer styles that have been somewhat forgotten and are being revisited from breweries and brewpubs.” Through the efforts of brewmasters like this people are becoming more educated on the long history that beer and brewing have had and how it can still today bring society together. Through this education and the publication of works devoted to the principal enlightenment of the populace on the role that beer and brewing had and is bringing back the craft beer revolution looks to make fundamental changes in the attitudes and behaviors of societies. These brewpubs seek to return the tavern cultural of neighborhoods interacting with one another sharing ideas and making connections that do not revolve around a computer but instead a good pint of beer.
Conclusion

Imagine a world without the pyramids, well without beer the pharaohs would have been left with no choice to pay the populace with other currency. How long would the workers have continued to show up if their wage tokens resulted in bread and water rations alone? Also, without beer’s medical properties as a pain killer and its antibiotic nature these workers may have left in search of better lives or forfeited their lives to diseases in the water they now were forced to drink.

How different would Europe look if the monks did not bring the brewing industry to Belgium and Germany? Would the Roman Empire ever been able to truly exert control over a populace that they had no financial way to control? Imagine the monks attempting to purchase their supplies with prayers and pardons from a populace that had yet to be converted. What use would a German Pagan have for a pardon from a god that he did not believe in? However, a tankard of good Lambic Ale is another matter altogether.

It is common knowledge that America was initially built and dreamed of in Taverns from all throughout New England. If it was not for the gathering place in Tun Tavern and the ability of beer to bring many strong-minded people together in the same room the United States Marine Corps, “The World’s 911 Force”, may never had been born on November 10th 1775 and the world has a small tavern in Philadelphia to thank.

While these stories are purely hypothetical and they can only be presented as hypotheses illustrating that human history is clearly intertwined with that of brewing. To build this case beers role was shown as a pivotal social, economic and political force in each time frame. The historical importance of beer and brewing has only recently been
brought to light and it deserves to gain its rightful place in history. Without this beverage human history would be dramatically different and without the acceptance of this there will always be the risk of a second prohibition. For in truth the practice of coming together to share beer should be a more valued tradition than any other in the world as it is the one linking pin for all areas. Whether or not you celebrate any holiday or come from any culture at one point in history beer was essential to the survival of the society. The social, economic and political the beer and brewing have had on societies should not be under estimated anymore and further research into this noble beverages history is needed.

Where will the craft brewing industry go? How much truth is there to the behind the scenes plots of national brewers to push forward the ill-fated prohibition? How many historical recipes are hidden and could be reproduced for a better understanding of human diet? Why has beer and the common man become something of scorn in America? These are all important topics that require further research. It was not the aim of this paper to bring forth an encompassing history of beer but to contradict the common misconception that beer is merely a recreational beverage. Indeed it is quite the opposite and human history owes a great debt to all of the brewers who came before the current disciples of the brewmaster tradition.

At the beginning of this paper a hypothesis was presented that beer was one of if not the most important discovery of man. This claim seems unfounded when taking beer as the demonized image that was presented of the town drunkard during prohibition. Drunken uncles across the country continue to perpetrate these images and modern day assault on drinking continues to attempt to keep beer in its place so to say. However
when presented with evidence such as the fact that drinking beer while sailing colonists
to and from America kept English sailors from getting scurvy it is hard to say that beer
has no good points. The facts continue to pile up as the moral crusade and failure of
prohibition (Corzine, 843), racked up national debt in a two-fold manner by not only
denying the country of the taxes raised through brewing taxes but also the out of control
budget to attempt to enforce the laws is not regularly publicized. However, the fact that
when it was repealed the now out of work moonshiners turned to racing and created
modern day NASCAR series is.

It is up to the scholars and the brewing industry to fight the ignorance of the
populace when it is concerning the rich and historical nature of beer. Only through
further study can the public face of brewing be turned from the drunken guy puking on
the street to the tavern where ideas flow as free as the pints. As some images after the
repeal attempted to make the case that choice is an American right and for those who
choose not to drink they should practice the virtue of Tolerance (Corzine, 843). Once this
image is returned to valuing the traditions of beer and brewing can it achieve the
appropriate study of its history and its social, economic and political impact throughout
societies?
Appendix A

Ancient Egyptian Influenced Brew Project

“Rollins Oats”

- **Ingredients**
  - The raw materials for this project were purchased from a local Home Brewing Specialty Shop\(^{32}\) except for the honey and yeast.
  - 3lbs Single Row Barley
  - 3lbs Flaked Wheat
  - 1lb Rice Hull
  - The Honey was purchased from a local honey producer\(^{33}\).
  - 1lb Blackberry Twist Honey
  - The yeast was purchased from a local grocery store and chosen due to the fact that brewer’s yeast has been modified and baker’s yeast is closer to the raw yeast found in the natural air.
  - 1 packet Whole Wheat Bread yeast
  - 3 Tablespoons Dried Coriander
  - 5 Gallons spring water

![Figure 2 Ingredients photo by Bougher, Matthew](image)

---

\(^{32}\)Hearts Home Brew is located at 6190 Edgewater Drive Orlando FL 32810. This location was utilized for their ability to provide almost all the ingredients for the recipe at the one location. The facility specializes in supplying home brewers with all the materials and equipment needed to brew their own beer.

\(^{33}\)Winter Park honey provided the raw honey from local bees. This specific honey was selected for its floral and fruit note as opposed to the primarily orange notes in the other honeys.
• Equipment
  o 6.75 Fermenting Bucket
  o 1 Fermenting lid with grommet hole and air lock
  o Hydrometer
  o Pots for bringing material to temperature
  o Strainer
  o Mason Jars

• Steps
  o First have Barley and Wheat Milled. This can usually be done at the location that sold the raw material.
  o Sterilize any item that comes in contact with the materials in lightly bleached water
  o Bring two gallons of spring water to 165 degrees F and add barley and wheat.
  o Mix this into an additional two gallons of 165 degrees F.
  o Bring one more gallon of spring water to 165 and dissolve honey and coriander.
  o Combine all this into the fermenting bucket take sample hydrometer reading and cover.
  o Allow to cool to 75 degrees F and add yeast.
  o Place airlock into the lid.
  o Allow to ferment for four to five days until the airlock does not show further signs of fermentation.
  o Take final hydrometer reading.
  o Place the mixture into jars and add rice hulls to each jar before sealing.
  o Allow to ferment for one day.

Procedure

The initial ingredients were purchased and milled at the home brew supply facility. This mixture had various consistencies and given the amount of dust that was generated from the milling was significant and if this was a continual process in an enclosed area the dust would have caked onto everything within the building. These were transported home along with the equipment. The equipment was sterilized in a mild bleach solution to prevent any chance of adulteration of the ingredients. This process would not have been available to the brewers of the time and as revealed in the previous
chapters may have actually permitted beneficial antibiotics to grow in the grain and vessels.

Brewing day brought with it a flurry of activity. All pots were brought to a temperature of 165 degrees F as measured by a temperature probe.

Figure 3 Water being brought to temperature. Photo by Bougher, Matthew
As the wheat and barley were mixed in it began to resemble watered down oatmeal. This was then watered down further by adding the second batch of water.

Figure 4 Mixing in the wheat and barley. Photo by Philips, Chris

Figure 5 Wheat and barley in prior to mixing. Photo Philips, Chris
The final gallon of 165 degree F water was used to dissolve and mix in the coriander. This was added to the fermenting bucket prior to mixing it all together. At this point the mixture was busy separating the large barley and wheat from the small by saturating the smallest grains first. The larger grains floated to the top and it made a three leveled mixture prior to stirring with a solid base at the bottom, a liquid portion in the middle and floating particles on the top.

![Figure 6 Stirring in the honey water and coriander. Photo Philips, Chris](image)

All ingredients were mixed together and combined. This resulted in a slightly aromatic mixture that could be best described as thin oatmeal with hints of coriander and honey. A small sample was taken for tasting and also to test the original gravity to determine potential alcohol and final alcohol. When tasting the mixture both Chris Philips my partner in this portion of the project and me agreed that it tasted as it looked and was not unpleasant to the taste. At this point the original gravity was taken with a
reading of 1.032. This revealed a potential ABV of 4 percent. This measure comes from an established formula that measures the sugars in the mixture that can be converted into alcohol. At this point the mixture was covered and capped with an airlock. This new airlock is used to prevent contamination much as the fabric air stops of the near east were used in ancient times. The advantage of the new airlock is that more efficient and also allows you a visual clue to when fermentation is complete.

Figure 7 Chris Philips and Matthew Bougher at completion. Photo by Bougher, Tina
The final step was to wait for the mixture to cool overnight and to add the yeast once it was to a safe temperature of 75 degrees F. The yeast was simply spread across the top and recapped.
The mixture then fermented in the cool environment of the house at 75 degrees F for 5 days. After this period the mixture was removed and jarred for consumption with the addition of a drop of honey for the yeast to consume and rice hull to simulate the husks that would have been present in the historical beer.

Figure 10 Jarred unfiltered beer with rice hulls. Photograph by Bougher, Matthew

After the initial jars were filled unfiltered several of the remaining jars were filled with strained product to closer resume the beer consumed today. This was accomplished by straining the beer through the rice hulls to remove the barley and wheat from the beverage. This final gravity was taken and resulted in 1.12.
Figure 11 A simple kitchen strainer was filled with rice hull to catch the grains. Photograph by Bougher, Matthew

Figure 12 Final Products Jarred and ready to ferment till consumed Photo by Bougher, Matthew

Final Summarization
This beer was a very simple beer to make. It required only minimal tools and vessels. However, it also did lack the complexity and stability of later brewing processes. The initial brew before fermentation tasted and smelled like honey oatmeal while a little watered down. This is in stark contrast to the resulting aroma and taste. When the fermentation ceased it resulted in a mixture of what one could only describe as fermented oatmeal. It had a sick pungent odor of something that was as this was allowed to ferment naturally. The taste was barely palatable and had a vinegar note to it. This is not something that would be consumed in modern times unless one was desperate.

However, with the initial gravity of 1.32 resulting in a potential ABV of 3-4 percent the recipe initially was in line historical suggestions of the proper ABV. When the final gravity was taken it resulted in a gravity of 1.12 resulting in a drop of .2 yielding a beer of approximately 3.4 ABV or perfectly in line with the suggested ABV of beer of the time.

While this beer may be historical correct it certainly is not close to its modern cousins in taste unless compared to one that been left to sour. In addition the aroma and scent of hops in all modern beers makes this one incomparable to its modern counterparts.
Appendix B

Craft Beer Revolution Inspired Beer

“Uber Pale Tar Ale”

- **Ingredients**
  - The raw materials for this project were purchased from a Kitchen and Home Décor Store as the “Everyday Pale Ale Homebrewing Kit”.
  - **Ingredient Mix**
    - 2 Apricots
    - The Honey was purchased from a local honey producer.
  - 3 Table Spoons Blackberry Twist Honey
  - 6 Quarts spring water
- **Equipment**
  - 6 Quart stock pot
  - Fine mesh strainer
  - 1 Gallon fermentation jug
  - Screw cap Stopper
  - Airlock
  - Racking cane
  - Tubing
  - 12” Lab thermometer
  - Sanitizer Packet
  - Funnel
  - 10 Bottles
  - Caps
  - Capper
  - Ice
- **Steps**
  - Sterilize any item that comes in contact with the materials in water mixed with sanitizer packet
  - Bring 2 quarts to 160 degrees F and add grain to create mash
  - After mixing cook at approximately 150 degrees F for 60 minutes
  - Bring to 170 degrees F and bring the other 4 quarts to 170 degrees F also
  - Pour mash plus apricots through strainer into large pot
  - Continue to pour remaining 4 quarts through mash and repeat once
  - Bring to a light boil adding hops as indicated by recipe this recipe called for addition of Colubus Hops at start then 1/5 of cascade hops ever 15 minutes till done
  - Cool with ice in larger vessel until reaching 70 Degrees F
  - Strain into 1 Gallon Fermenting Jug

---

34 This kit is produced by the Brooklyn Brewshop and details can be found on their website [www.brooklynbrewshop.com](http://www.brooklynbrewshop.com)
35 Winter Park honey provided the raw honey from local bees. This specific honey was selected for its floral and fruit note as opposed to the primarily orange notes in the other honeys.
- Add yeast, shake and cap while placing tube into a blowoff bowl to catch any foam that may be pushed out
- After initial fermentation, 2 to 3 days add airlock
- Ferment for 2 weeks
- Dissolve honey with water and using racking cane to start the siphon move the liquid to one more pot
- Bottle the beer and cap using the capper
- Store for 2 more weeks then drink

Figure 13As with the other beer the wort was boiled Photo by Bougher, Matthew.
Figure 14 Apricots were added to the stock kit Photo by Bouger, Matthew.

Figure 15 The cooled beer was bottled for fermentation Photo by Bouger, Matthew.
Figure 16: To cool the wort it was given an ice bath. Photo by Bougher, Matthew.
Figure 17 The first couple days the beer fermented into a blowoff bowl Photo by Bougher, Matthew

Figure 18 The beer was placed into the bottles to finish fermenting Photo by Bougher, Tina
Figure 19 Specialized tools such as this capper are common in brewing Photo by Bougher, Tina.

Figure 20 The final product initially had a little too much head but later bottles poured better Photo Bougher, Matthew.
Final Summarization

This beer was slightly more complicated and involved more steps and equipment to brew. It included vessels of a quality not attainable in earlier times and used materials such as high quality glass and plastic to withstand pressures. The initial brew before fermentation tasted and smelled once again resembled watery oatmeal. The resulting smell while brewing had the distinct aroma of hops. This was very pleasant compared to the previous beer. Apricot was added to the kit to add an extra flavor profile to the beer. While Rollins Oats from the point on of fermentation resulted in a pungent odor this beer had a complex smell and taste levels.

After bottling this beer several were tried by all after the two weeks but too soon and resulted in a very foamy beer. Bottles that were left to sit long resulted in a very pleasant tasting Pale Ale comparable to many of the products on the market today. However, between the cost and time spent on the project it would not be a very finically sound way to produce beer for home consumption. It was though a very informative and easy to follow process with Brooklyn Brewshop providing training videos and detailed instructions to follow.

Appendix C

The following translation of The Hymn to Ninkasi is by Miguel Civil:

Hymn to Ninkasi
Borne of the flowing water,  
Tenderly cared for by the Ninhursag,  
Borne of the flowing water,  
Tenderly cared for by the Ninhursag,  

Having founded your town by the sacred lake,  
She finished its great walls for you,  
Ninkasi, having founded your town by the sacred lake,  
She finished its walls for you,  

Your father is Enki, Lord Nidimmud,  
Your mother is Ninti, the queen of the sacred lake.  
Ninkasi, your father is Enki, Lord Nidimmud,  
Your mother is Ninti, the queen of the sacred lake.  

You are the one who handles the dough [and] with a big shovel,  
Mixing in a pit, the bappir with sweet aromatics,  
Ninkasi, you are the one who handles the dough [and] with a big shovel,  
Mixing in a pit, the bappir with [date] - honey,  

You are the one who bakes the bappir in the big oven,  
Puts in order the piles of hulled grains,  
Ninkasi, you are the one who bakes the bappir in the big oven,  
Puts in order the piles of hulled grains,  

You are the one who waters the malt set on the ground,  
The noble dogs keep away even the potentates,  
Ninkasi, you are the one who waters the malt set on the ground,  
The noble dogs keep away even the potentates,  

You are the one who soaks the malt in a jar,  
The waves rise, the waves fall.  
Ninkasi, you are the one who soaks the malt in a jar,  
The waves rise, the waves fall.  

You are the one who spreads the cooked mash on large reed mats,  
Coolness overcomes,  
Ninkasi, you are the one who spreads the cooked mash on large reed mats,  
Coolness overcomes,  

You are the one who holds with both hands the great sweet wort,  
Brewing [it] with honey [and] wine  
(You the sweet wort to the vessel)  
Ninkasi, (…)(You the sweet wort to the vessel)
The filtering vat, which makes a pleasant sound,  
You place appropriately on a large collector vat.  
Ninkasi, the filtering vat, which makes a pleasant sound,  
You place appropriately on a large collector vat.

When you pour out the filtered beer of the collector vat,  
It is [like] the onrush of Tigris and Euphrates.  
Ninkasi, you are the one who pours out the filtered beer of the collector vat,  
It is [like] the onrush of Tigris and Euphrates.  
(http://www.ancient.eu.com/article/222)
References


*Beer jug (left), drinking bowl with handle and sieve (right)*. Reuben and Edith Hecht Museum of Archaeology, University of Haifa: LESSING_ART_10313049356, Artstor, 2012.


